Complete Summary

GUIDELINE TITLE

Acidosis in pre-dialysis patients.

BIBLIOGRAPHIC SOURCE(S)

Voss D. Acidosis in pre-dialysis patients. Nephrology 2005 Dec;10(S5):S193-4.

Voss D. Acidosis in pre-dialysis patients. Westmead NSW (Australia): CARI - Caring for Australasians with Renal Impairment; 2005 Aug. 4 p. [6 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Acidosis
- Chronic kidney disease

GUIDELINE CATEGORY

Management
Treatment

CLINICAL SPECIALTY

Family Practice
Internal Medicine

Nephrology
Pediatrics

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To outline the available recommendations and guidelines for administering dietary sodium bicarbonate and maintaining serum bicarbonate levels above 22 mmol/L
- To investigate if a serum bicarbonate level lower than 22 mmol/L is associated with morbidity or mortality

TARGET POPULATION

Adults and children with chronic kidney disease

INTERVENTIONS AND PRACTICES CONSIDERED

Correction of the serum bicarbonate level with oral sodium bicarbonate was considered but not recommended.

MAJOR OUTCOMES CONSIDERED

- Serum bicarbonate level
- Morbidity
- Mortality
- Adverse effects of excessive sodium loading

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Databases searched: MeSH terms and text words for kidney disease were combined with MeSH terms and text words for acidosis and bicarbonate then combined with the Cochrane highly sensitive search strategy for randomized controlled trials. The search was carried out in Medline (1996 – November Week 2 2003). The Cochrane Renal Group Trials Register was also searched for trials not indexed in Medline.

Date of searches: 27 November 2003.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Recommendations of Others. Recommendations regarding acidosis in pre-dialysis patients from the following groups were discussed: Kidney Disease Outcomes Quality Initiative, British Renal Association, Canadian Society of Nephrology, and European Dialysis & Transplant Nurses Association/ European Renal Care Association.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the levels of evidence (I–IV) can be found at the end of the "Major Recommendations" field.

Guidelines

No recommendations possible based on Level I or II evidence

Suggestions for Clinical Care

(Suggestions are based on Level III and IV evidence)

- Oral sodium bicarbonate should be administered to maintain the serum bicarbonate above 22 mmol/L. (Level III evidence) Sodium bicarbonate is preferred to sodium citrate if the patient is also on aluminium phosphate binders.

Oral sodium bicarbonate in a total daily dose of 0.5 –1.0 mmol per kg body weight per day, in divided doses two to three times a day (tailored to the individual patient's tolerance) should be administered to maintain the serum bicarbonate above 22 mmol/L.

Oral bicarbonate is available as the sodium salt. The amount of bicarbonate required to correct the acidosis often results in a sodium load that may exacerbate the patient's hypertension or oedematous state. A balance between the benefits of correction of the acidosis, and the risks of excessive sodium loading has to be made for each individual.

Each 4 g Ural sachet contains 28 mmol of sodium. Each sodium bicarbonate tablet contains 10 mmol of sodium/tablet. One teaspoon (approximately 5 g) of baking soda in 60 mL of water produces 1 mmol HCO_3/mL (see the National Guideline

Clearinghouse [NGC] summary of the Caring for Australians with Renal Impairment guideline sodium in pre-dialysis patients for sodium content).

Correction of metabolic acidosis in severe renal failure is desirable to minimize skeletal muscle breakdown and the associated negative nitrogen balance.

Definitions:

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management of acidosis in patients with chronic kidney disease

POTENTIAL HARMS

The amount of bicarbonate required to correct the acidosis often results in a sodium load that may exacerbate the patient's hypertension or oedematous state. A balance between the benefits of correction of the acidosis, and the risks of excessive sodium loading has to be made for each individual.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2005 Dec

GUIDELINE DEVELOPER(S)

Caring for Australasians with Renal Impairment - Disease Specific Society

SOURCE(S) OF FUNDING

Industry-sponsored funding administered through Kidney Health Australia

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Author: David Voss

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All guideline writers are required to fill out a declaration of conflict of interest.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Caring for Australasians with Renal Impairment Web site.

Print copies: Available from Caring for Australasians with Renal Impairment, Locked Bag 4001, Centre for Kidney Research, Westmead NSW, Australia 2145

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- The CARI guidelines. A guide for writers. Caring for Australasians with Renal Impairment. 2006 May. 6 p.

Electronic copies: Available from the Caring for Australasians with Renal Impairment (CARI) Web site.

PATIENT RESOURCES

None available

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